



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/205,094	12/03/1998	HIROYUKI OKADA	018656-045	8215

21839 7590 07/16/2003

BURNS DOANE SWECKER & MATHIS L L P
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

VILLECCO, JOHN M

ART UNIT	PAPER NUMBER
----------	--------------

2612

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/205,094

Applicant(s)

OKADA, HIROYUKI

Examiner

John M. Villecco

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-15 and 17-20 is/are rejected.
- 7) ☒ Claim(s) 8 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on 19 May 2003 is: a) ☒ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION II

Drawings

1. The proposed drawing correction and/or the proposed substitute sheets of drawings, filed on May 19, 2003 have been accepted. A proper drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The correction to the drawings will not be held in abeyance.

Response to Arguments

2. Applicant's arguments filed May 19, 2003 have been fully considered but they are not persuasive. Regarding claims 1 and 10, applicant argues that Rashkovskiy does not teach a processor that is disposed within the camera body. However, it is noted that the applicant's preamble indicates that each of the limitations are disposed within a digital camera. However, since the preamble does not refer to the limitations of the claim nor is it necessary to give meaning to the claim, the preamble is not given patentable weight. See *Pitney Bowes Inc v. Hewlett-Packard Co.*, 182 F.3d 1298, 1305, 51 USPQ2d 1161, 1165-66 (Fed. Cir. 1999) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951). Also see MPEP §2111.03. Therefore, it is irrelevant that the processor in Rashkovskiy is located within the computer system (24).

Furthermore, even if the preamble was given patentable weight, the claim language does not stipulate that each of the parts of the digital camera are disposed within one camera body. The computer system is still considered part of the digital camera system.

Art Unit: 2612

Additionally, applicant argues that Rashkovskiy does not disclose simultaneously storing image data and information which describes colors or different components. However, the claim language does not include the limitation of simultaneously storing the image data and information. Konishi is used to show that it is well known in the art to store image data and color filter data together.

Applicant also argues that Konishi fails to disclose the process of interpolating missing pixels. It is respectfully submitted that Rashkovskiy is used to meet this limitation.

Applicant states that Konishi fails to teach simultaneously storing image data and information which describes the colors or components. Again, the claim language does not include the limitation of simultaneously storing the image data and information. The claim language does disclose storing image data and filter data together. It is clear from col. 5, line 5-65, that Konishi does teach this limitation since it stores the information together in the recording medium.

Additionally, applicant has amended claims 6 and 14. Thus a new grounds of rejection has been presented below. Also, please note the new grounds of rejection for claims 4-5 and 13. Since the ground of rejection for claims 4-5 and 13 are newly presented, **this action is made non-final.**

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 2612

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5 and 10-13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Rashkovskiy et al. (U.S. Patent No. 6,181,376) in view of Konishi (U.S. Patent No. 4,574,319).

5. Regarding *claim 1*, Rashkovskiy discloses a method of determining the missing color values for pixels in a color filter array. Rashkovskiy discloses an image pickup device equipped with a color filter array (13) which is inherently located so as to correspond to individual pixels that perform color separation of the image. Since the camera is a digital camera the camera inherently includes an A/D converter. The system acquires the "color filter image" (16), stores it in memory (18) and transfers the image to the computer system (24) for interpolation. The camera further includes a data processor that interpolates for missing pixels of each color and a display device (30) for viewing the image that has been interpolated.

Rashkovskiy, however, fails to disclose that the system operates to record, together with the image data, data regarding the arrangement of the color filter. Konishi, on the other hand, teaches that it is well known in the art to save information regarding the arrangement of the color filter array along with the image data. See column 4, line 57 to column 5, line 26. When the image is reproduced the data is used for compensation in image reproduction (col. 6, lines 10-12). By storing the additional information onto the recorder (9) the processing can be postponed to be done by a more powerful processor and memory can be saved. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to send filter data along with the image in Rashkovskiy so that proper processing can be carried out by the computer system (24) and different color filters can be used.

Art Unit: 2612

6. As for *claim 2*, Rashkovskiy discloses that the recording medium (10) is releaseably fitted onto the camera. Furthermore, Rashkovskiy teaches that the recording medium could be a magnetic disk. It is the opinion of the examiner that the magnetic disk can be interpreted as a memory card.

7. Regarding *claim 3*, Rashkovskiy discloses the use of the interface (20) of the digital camera (10) for transmitting the "raw" image data to the computer system (24). When used in combination with Konishi, it would obvious send both the image data and the filter data.

8. *Claim 4* is substantively similar to claim 1 with the added limitation of an output unit that outputs to an external device the complete pixel data together with the filter alignment data recorded on the recording device. Please see the discussion of claim 1 above for the discussion of the previous limitations. As for the output unit, Konishi does disclose that the image data and the filter data are stored together on the memory card (10). Along with being the recording medium, the memory card (10) also serves as the output unit since it operates to output both the image data and the filter data to an external device. See column 5, line 64 to column 6, line 12.

9. As for *claim 5*, Rashkovskiy discloses that the display (30) is used to view the processed image data from the processor (26).

10. With regard to *claim 10*, Rashkovskiy discloses a method of determining the missing color values for pixels in a color filter array. Rashkovskiy discloses an image pickup device equipped with a color filter array (13) which is inherently located so as to correspond to individual pixels that perform color separation of the image. Since the camera is a digital camera the camera inherently includes an A/D converter. The system acquires the "color filter image" (16), stores it in memory (18) and transfers the image to the computer system (24) for

Art Unit: 2612

interpolation. The camera further includes a data processor that interpolates for missing pixels of each color and a display device (30) for viewing the image that has been interpolated

Rashkovskiy, however, fails to disclose that the system operates to record, together with the image data, data regarding the pixel arrangement. Konishi, on the other hand, teaches that it is well known in the art to save information regarding the arrangement of the pixels relative to different components along with the image data. See column 4, line 57 to column 5, line 26.

When the image is reproduced the data is used for compensation in image reproduction (col. 6, lines 10-12). By storing the additional information onto the recorder (9) the processing can be postponed to be done by a more powerful processor and memory can be saved. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to send filter data along with the image in Rashkovskiy so that proper processing can be carried out by the computer system (24) and different color filters can be used.

11. **Claim 11** is considered substantively equivalent to claim 2. Please see the discussion of claim 2 above.

12. **Claim 12** is considered substantively equivalent to claim 3. Please see the discussion of claim 3 above.

13. **Claim 13** is substantively similar to claim 10 with the added limitation of an output unit that outputs to an external device the complete pixel data together with the pixel arrangement data recorded on the recording device. Please see the discussion of claim 10 above for the discussion of the previous limitations. As for the output unit, Konishi does disclose that the image data and the pixel arrangement data are stored together on the memory card (10). Along with being the recording medium, the memory card (10) also serves as the output unit since it

Art Unit: 2612

operates to output both the image data and the filter data to an external device. See column 5, line 64 to column 6, line 12.

14. **Claims 6-7, 9, 14-15, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rashkovskiy et al. (U.S. Patent No. 6,181,376) in view of Konishi (U.S. Patent No. 4,574,319) and further in view of Parulski et al. (U.S. Patent No. 5,040,068).**

15. Regarding *claim 6*, Rashkovskiy discloses a method of determining the missing color values for pixels in a color filter array. Rashkovskiy discloses an image pickup device equipped with a color filter array (13) which is inherently located so as to correspond to individual pixels that perform color separation of the image and sensors (14) for picking up the image. Since the camera is a digital camera the camera inherently includes an A/D converter. The system acquires the "color filter image" (16), stores it in memory (18) and transfers the image to the computer system (24) for interpolation. The memory (18) serves as the first site and the computer memory (28) serves as the second site. The camera further includes a data processor that interpolates for missing pixels of each color and an interface (20) for outputting the image data to the computer system (24).

Rashkovskiy, however, fails to disclose that the system operates to record, together with the image data, data regarding the arrangement of the color filter. Konishi, on the other hand, teaches that it is well known in the art to save information regarding the arrangement of the color filter array along with the image data. See column 4, line 57 to column 5, line 26. When the image is reproduced the data is used for compensation in image reproduction (col. 6, lines 10-12). By storing the additional information onto the recorder (9) the processing can be postponed

Art Unit: 2612

to be done by a more powerful processor and memory can be saved. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to send filter data along with the image in Rashkovskiy so that proper processing can be carried out by the computer system (24) and different color filters can be used.

Furthermore, neither Rashkovskiy nor Konishi discloses that the storing of the image data and storing of the color filter information is stored simultaneously at the first site. Parulski, on the other hand, teaches that it is well known in the art to store information on the type of color filter being used and using that information for subsequent processing of image data. As discussed in column 4, lines 4-19, when a new imaging array is attached the type of color filter read out to the control processor (40). Thus when used in conjunction with Rashkovskiy and Konishi it would have been obvious to one of ordinary skill in the art at the time the invention was made to also store the type of filter being used since the type of filter can be changed between subsequent phototaking operations. Thus, when used in combination with Konishi, the type of color filter will be stored with every image instead of once so that the type of filter is known for each image.

16. Regarding *claim 7*, Rashkovskiy discloses that the system generates color according to a Bayer filter array pattern of red, green, and blue. The system operates to generate red, green and blue pixel data for each of the photosites. See column 4, line 62 to column 5, line 15.

17. As for *claim 9*, Official Notice is taken as to the fact that it is well known in the art to compress image data before transferring it to an external site. Compressing an image conserves both memory and bandwidth when transmitting. Therefore, it would have been obvious to

Art Unit: 2612

compress the image before transmitting the image so that memory is conserved and bandwidth is reduced.

18. **Claim 14** is considered substantively similar to claim 6. Please see the discussion of claim 6 above.

19. **Claim 15** is considered substantively similar to claim 7. Please see the discussion of claim 7 above.

20. With regard to **claim 18**, as mentioned above in the discussion of claim 1, both Rashkovskiy and Konishi disclose all of the limitations of the parent claim. However, neither of the aforementioned references discloses that the storing of the image data and storing of the color filter information is stored simultaneously. Parulski, on the other hand, teaches that it is well known in the art to store information on the type of color filter being used and using that information for subsequent processing of image data. As discussed in column 4, lines 4-19, when a new imaging array is attached the type of color filter read out to the control processor (40). Thus when used in conjunction with Rashkovskiy and Konishi it would have been obvious to one of ordinary skill in the art at the time the invention was made to also store the type of filter being used since the type of filter can be changed between subsequent phototaking operations. Thus, when used in combination with Konishi, the type of color filter will be stored with every image instead of once so that the type of filter is known for each image.

21. **Claim 20** is considered substantively equivalent to claim 18. Please see the discussion of claim 18 above.

Art Unit: 2612

22. **Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rashkovskiy et al. (U.S. Patent No. 6,181,376) in view of Konishi (U.S. Patent No. 4,574,319) and further in view of Lathrop (U.S. Patent No. 6,288,743).**

23. Regarding claim 17, as mentioned above in the discussion of claim 1, both Rashkovskiy and Konishi disclose all of the limitations of the parent claim. However, neither of the aforementioned references discloses that the digital camera has a display device that reproduces the interpolated pixel from the data processor. Lathrop, on the other hand, teaches that it is well known in the art to perform interpolation processing using a microprocessor (22) disposed in the camera. This feature will allow the camera specific processing to be performed in the camera and not in the computer, thus avoiding the necessity of upgrading a personal computer system with costly software. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to perform the interpolation processing in the camera body so a costly computer upgrade can be avoided.

24. **Claim 19** is considered substantively similar to claim 17. Please see the discussion of claim 17 above.

Allowable Subject Matter

25. Claims 8 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

26. The following is a statement of reasons for the indication of allowable subject matter:

Art Unit: 2612

Regarding *claims 8 and 16*, the primary reason for indication of allowable subject matter is that the prior art fails to teach or reasonably suggest performing a first interpolation at a first site to generate complete image data and transmitting the complete image data to a second site and reinterpolating the first set of complete color data at the second site in accordance with the stored information using a different interpolation process to produce a second set of complete color data.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 308-6306 (For either formal or informal communications intended for entry. For informal or draft communications, please label **"PROPOSED"** or **"DRAFT"**)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington VA, Sixth Floor (Receptionist).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (703) 305-1460. The examiner can normally be reached on Monday through Thursday from 7:00 am to 5:30 pm EST.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber, can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Art Unit: 2612

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service desk whose telephone number is (703) 306-0377.



JMV
7/9/03



WENDY R. GARBER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600